Contents

Thematic Issue on Numerical Methods in Astrophysical Hydrodynamics Editors: W.J. Duschl and W.M. Tscharnuter

Preface	x
Contents	xi
Riffert, H., H. Herold, O. Flebbe and H. Ruder Numerical aspects of the smoothed particle hydrodynamics method for simulating accretion disks	1
Camenzind, M. An implicit FE-time solver for axisymmetric magnetic dynamo equations	17
Yorke, H.W. and M. Kaisig Use of multiply nested grids for the solution of flux-limited radiation diffusion and hydrodynamics	29
Müller, E. and M. Steinmetz Simulating self-gravitating hydrodynamic flows	45
Boss, A.P. and E.A. Myhill Second-order-accurate radiative hydrodynamics and multidimensional protostellar collapse	59
Dorfi, E.A. and M.U. Feuchtinger Adaptive radiation hydrodynamics of pulsating stars	69
Balluch, M. Adaptive numerical advection. The coordinate transformation equation method	91
Wuchterl, G. Time-dependent convection on self-adaptive grids	119
Hawley, J.F. and J.M. Stone MOCCT: A numerical technique for astrophysical MHD	127
Bryan, G.L., M.L. Norman, J.M. Stone, R. Cen and J.P. Ostriker A piecewise parabolic method for cosmological hydrodynamics	149
Author index	169